

531605

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



Rec'd PCT/PTO 14 APR 2005

(43) International Publication Date
29 April 2004 (29.04.2004)

PCT

(10) International Publication Number
WO 2004/036536 A1

(51) International Patent Classification⁷: G09G 3/32

(21) International Application Number:
PCT/IB2003/004428

(22) International Filing Date: 8 October 2003 (08.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0224277.4 18 October 2002 (18.10.2002) GB

(71) Applicant (for all designated States except US): KONIN-
KLJKE PHILIPS ELECTRONICS N.V. [NL/NL];
Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventor; and

(75) Inventor/Applicant (for US only): STEER, William, A.
[GB/GB]; c/o Philips Intellectual Property & Standards,
Cross Oak Lane, Redhill, Surrey RH1 5HA (GB).

(74) Agent: WILLIAMSON, Paul, L.; Philips Intellectual
Property & Standards, Cross Oak Lane, Redhill, Surrey
RH1 5HA (GB).

(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE,
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,
MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT,

RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,
TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI,
SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

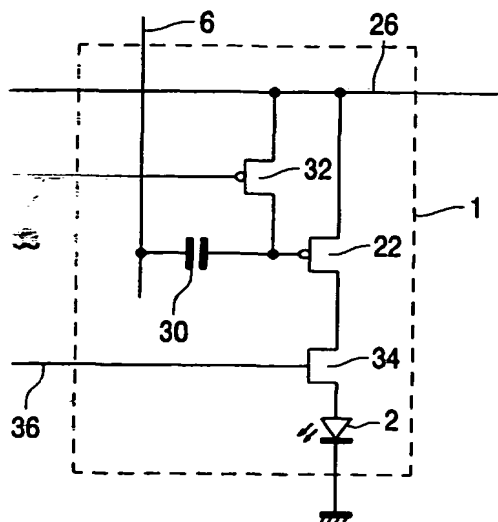
— as to applicant's entitlement to apply for and be granted
a patent (Rule 4.17(ii)) for the following designations AE,
AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES,
FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,
MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT,
RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT,
TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent
(GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI,
SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG)

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: ACTIVE MATRIX ORGANIC ELECTROLUMINESCENT DISPLAY DEVICE



(57) Abstract: An active matrix electroluminescent display device uses a stepped voltage waveform to the input of the pixel, the stepped voltage waveform being voltage-shifted by a previously stored pixel drive voltage before application to the gate of a drive transistor. The level of the voltage shift determines the duty cycle with which the display element is driven, and thereby controls the grey level output. The height of the steps in the stepped voltage waveform is greater than the voltage width of linear operating region of the drive transistor, so that a selected step of the stepped waveform defines a transition from the drive transistor between fully on and fully off. In this way, the drive transistor is never driven in the linear region.

WO 2004/036536 A1